

FISHERIES MANAGEMENT

Project title: **Le Hardy Rapids Yellowstone Cutthroat Egg Collection for the Development of Species Specific Brood Stock for Drainage Restoration**

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Objective: To collect and fertilize eggs for Yellowstone cutthroat trout pairs to develop a captured brood stock program. Eggs will be collected from the population that inhabits the Yellowstone Lake to Upper falls. Fish management staff at Yellowstone have also asked for egg collection on various other tributaries to aid in whirling disease research. The primary capture location will be Le Hardy Rapids, although other sites within the drainage may be considered if catch rates do not meet objectives. The original objective each year was to collect a partial spawn from a minimum of 25 pairs for consecutive years (1993-1996) for the purpose of stock recruitment of a brood stock to be held at Clark's Fork Fish Hatchery. This brood stock will be used for drainage restoration of the endemic range of the Yellowstone River in Wyoming and will also assist in the restoration projects in Montana.

Findings: We have had excellent cooperation with YNP personnel in accomplishing our goals with this project. This is the last anticipated year of the consecutive year collection process. Year 2000 collection will assure the brood stock adequate year classes for its development. We will then return to YNP every three to five years to infuse new genetic material from the Le Hardy Rapids stock into our Clark's Fork Fish Hatchery stock to assure good genetic representation of this stock.

Project title: **Collection of Gametes from Wild Stock Lewis Lake Lake Trout to Establish a Captive Broodstock to Support Lake Trout Restoration in the Great Lakes**

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Additional investigators: Ed Stege

Objective: The overall objective of this research project is to capture and spawn a minimum of 50 pairs of Lewis Lake lake trout in both calendar year 1999 and 2000. Fertilized eggs will be transported to the Saratoga National Fish Hatchery, Wyoming, for the establishment of a captive broodstock. Progeny from the Lewis Lake captive broodstock at Saratoga NFH will then be used for lake trout restoration/recovery programs in the Great Lakes. This project is part of an ongoing effort that was initiated in 1983 with respect to utilizing Lewis Lake lake trout for lake trout restoration in the Great Lakes. Genetic considerations mandate an infusion of wild genes into captive broodstocks on a regular basis to insure the genetic integrity of broodstock populations.

Findings: Although past efforts had utilized electroshock techniques for fish capture, gill net sets were used in an effort to reduce incidental fish mortality. Although some mortality was observed, general consensus with respect to gill net utility was positive. Although only 24 paired matings were effected, eggs collected from a number of the larger females were split and fertilized individually with milt from different males, resulting in a total of 39 genetically distinct egg lots. All egg lots were transported to the Saratoga NFH and are being held in quarantine until the completion of disease testing on ovarian fluids collected from all spawned females, and a complete disease evaluation of resultant fry. Samples of fin tissue were also collected from 28 adult Lewis Lake lake trout. The USFWS is currently pursuing funding for a complete genetic evaluation of these samples.

Project title: **Cutthroat Trout Egg and Sperm Collection**

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Additional investigators: Montana Fish, Wildlife & Parks Personnel

Objective: To successfully manage Montana's fishery resources we need to maintain our hatchery broodstocks with a wide genetic diversity. These broodstocks should mirror their wild ancestors as closely as possible. The original gametes for our Yellowstone cutthroat trout broodstock came from McBride Lake in Yellowstone National Park in 1969. The last time gametes were taken from the lake to supplement the broodstock was 1987. To once again infuse our broodstock with new genetic material, we will collect gametes from Yellowstone cutthroat trout in McBride Lake for three consecutive years, beginning in 2000. We will take gametes from 10 pairs of fish each year. Health and genetic samples will be taken from the same fish.

Findings: A permit for egg collection was received in 1999. Due to high snow pack and late run off it was not possible to get the gametes in the spring of 1999. Montana Fish, Wildlife, and Parks' fishery biologists, hatchery employees, and Fish Health biologists are prepared to go to McBride Lake in June of 2000 and the following two years.

Project title: **Arctic Grayling Recovery Program**

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Additional investigators: Scott Opitz

Objective: Research investigation of potential restoration sites for fluvial Arctic grayling and possible presence of Arctic grayling in some locations.

Findings: Investigated presence of Arctic grayling in the Gallatin River with the assistance of National Park Service personnel (Dan Mahony). We did not locate any grayling during survey in 1999.